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COMMENTS ON JACQUES' "THE DIRECTIONALITY OF THE VOICING ALTERNATION IN TIBETAN"

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Abstract
This response to Jacques' paper (of this volume, JSEALS 14.1:32-38) suggests a revision of the temporal frame of the morphological processes discussed by Jacques. It agrees on the reconstructed sequence of derivation by means of a transitivising and voicing prefix that was followed by Schiefner's law but dates both processes to stages in the history of the Trans-Himalayan family that preceded the formation of Proto-Tibetic.

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ISO 639-3 codes: bod, tib, sit

1 Introduction

Jacques' hypothesis sounds flawless. It not only explains the voicing alternation between transitive and intransitive verbs and its relation to Schiefner's law, but also allows us to account for some lexical phenomena considered problematic heretofore. Nonetheless, one aspect of the hypothesis raises doubts: the chronology.

My reply to Jacques' paper consists of two parts. In the first part I point to certain problems regarding the reconstruction put forward by Jacques and suggest a revision of its temporal frame. The second part is devoted to several lexical items that have been used by Jacques and other scholars to support the one or the other view on the discussed problems. The paper ends with a brief discussion of Thebo data referred to by Jacques.[1]

2 The lost timeline

The first objective of Jacques' paper is to demonstrate "the directionality of the voicing alternation (from voiceless to voiced) in the Tibetan verbal system" (p. 32). As far as I understand Jacques' reconstruction, he proposes the following scenario: Proto-Tibetic (PT) inherited roots with voiceless fricatives and affricates in initial position, among them transitive verbs. The language had a productive prefix X_2-[2] that allowed derivation of intransitive verbs from transitive ones and led to voicing of voiceless root consonants (K- → X_2+K- → G-). In the cases with voiceless fricatives and affricates this, however, resulted in one voiced consonant for alveolar (d͡z/z) and one for alveolo-palatal (d͡ʑ/ʑ) because PT did not contrast voiced alveolar and alveolo-palatal fricatives and affricates due to Schiefner's law:

[1] Tibetan transliteration and nomenclature follow Bialek (2020b). A regular font is used for IPA transcription, whereas for transliteration of Old Tibetan (OT) italic type is used.

[2] In various studies referred to as N- prefix and constrasted with the causative *s*- prefix (see Handel 2012). The devoicing prefix is dubbed 'X_1' by Jacques (p. 35).

		X_2-prefixation	Schiefner's law
(1)	s/ɕ-	→ X_2+s/ɕ-	→ z/ʑ-
(2)	ʦ/ʨ-	→ X_2+ʦ/ʨ-	→ z/ʑ-[3]

The tacit assumption of Jacques' paper is that in PT the prefix X_2- was productive and Schiefner's law was an innovation of PT.

2.1 Problem 1: The dating of the prefix X_2-

Jacques' paper begins with the statement that "[n]early all languages in the Trans-Himalayan family, including Old Chinese, Tibetan, Kiranti, Lolo-Burmese, Jingpo, Bodo-Garo, and other languages, have a voicing alternation correlated with transitivity" (p. 32) according to the pattern: voiceless = transitive, voiced = intransitive. Further languages from the Qiangic branch are added to the list in a forthcoming paper by Gates et al.: Stau, Geshiza, Khroskyabs, Japhug, Minyag, and Tangut (Gates, Honkasalo, and Lai Draft). The same correlation is encountered, for instance, in Kurtöp (Hyslop 2017:198), Bunan (Widmer 2017:388 & 392f.), and Darma (Willis 2019:273).[4]

The derivation of the alternating stems was not productive in OT as it is not in any modern Tibetic language, or, for that matter, in Kurtöp or Bunan. In fact, for none of the TH languages is the process described as productive. All these languages have inherited pairs of verbs that are related to each other historically, from which the transitive has a voiceless and the intransitive a voiced root consonant. What's more, none of the languages has preserved the derivational affix that had led to the alternation (see Handel 2012:64 and on Japhug Jacques 2019 Draft:759). All this strongly suggests that the affix was productive in the common ancestor language, i.e. Proto-Trans-Himalayan (PTH)[5], and maybe, to a lesser extent, in some daughter languages. It certainly reconstructs to a deep level within TH family. The logical conclusion is that PT, or rather Proto-Bodic, inherited the alternating verb stems but not the productive affix.[6]

2.2 Problem 2: Schiefner's law

Certain phonetic regularities in Classical Tibetan (CT) verb conjugations, first observed by Schiefner, were recently dubbed 'Schiefner's law' by Hill (2014:171). Schiefner himself remained vague about the change stating only: "[a]usser den beiden eben genannten Erweichungen von *ǰ* und *ɟ* zu *ź* und *z* kommt auch noch die von *č* und *čh* zu *ś*, von *c* und *ch* zu *s* vor." (1852:365). This observation concerns not only inflected verbs, but also other word classes (ibid., p. 366) and can be schematically presented as:

ʣ → ʒ	ʣ → z
ʨ → ɕ	ʦ → s

Schiefner remained silent about the conditions under which these changes occurred.

Hill has narrowed down Schiefner's law to the voiced pairs, observing that "essentially no Tibetan word begins with *ɟ*-" (the same applies to the initial *ǰ*-, 2014:171) and quoting comparative data that indicates that at least some initial z- in OT come from PTH ʣ- (ibid., p. 169f.). Even more radical was Hill's statement that "it is tempting to speculate that at one point in Tibetan pre-history no roots began with *z*- or *ź*-" (ibid., p. 172).[7] As a consequence, *all* OT initial z- and ʒ- must have resulted from *ʣ- and *ʣ-.[8] It is this radical reformulation of Schiefner's law, and not the law as such, to which I opposed (Bialek 2020a:280, fn. 48). I quoted two verb roots to demonstrate that PT must have had initial z- and ʒ-:

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[3] z- and ʒ- could be replaced by either ʣ- or ʤ- in certain phonetic contexts according to Conrady's law (Hill 2014:167f.). The distribution of z/ʒ- and ʣ/ʤ- was complementary; see Table 1 in Jacques' paper.

[4] Hyslop and Widmer explain the alternation as a result of the causative *s*- prefix.

[5] This was already recognised by Benedict (1972:124).

[6] This is also the sense of my words that "[t]he question of which roots, transitive K or intransitive G, were primary and which derivational, cannot be answered on the grounds of Tibetan data only. For this reason, both types of roots should be reconstructed into PT." (Bialek 2020a:267, fn. 12; the last sentence has been left out by Jacques, pp. 32).

[7] This opinion is repeated verbatim in Hill (2019:28) and restated as "The proto-language did not have voiced fricatives" (ibid., p. 45).

[8] For the initial *ʒ*- Hill also quotes other potential sources (2014:171f.).

√ʑig "collapse" ~ √ɕig "destroy"
√zad "decline" ~ √sad "kill"

These can be juxtaposed with, for instance:

√ʑug (< *dʑug) "enter" ~ √tɕug "put in"
√zugs (< *dzugs) "go into" ~ √tsugs "insert"

Given these data I proposed considering the changes dz- > z- / #_ and dʑ- > ʑ- / #_ mergers with the inherited z- and ʑ- respectively (ibid.).[9]

In Jacques' hypothesis the derivation by means of the prefix X_2- is assumed to be simultaneous with Schiefner's law, both taking effect in PT. Here we encounter another chronological problem for Jacques passes over in silence Hill's data on traces of Schiefner's law in Kurtöp and Monpa (Hill 2014:172; 2019:28).[10] Accepting the data, we have to date Schiefner's law to Proto-Bodish.[11] Jacques' conclusion that "there was no contrast between voiced affricates and voiced fricatives in pre-Tibetan" (p. 35) remains valid, assuming that his pre-Tibetan = my Proto-Tibetic.[12]

2.3 Discussion

Jacques dates the X_2-prefixation and Schiefner's law to PT but arranges them in verb conjugations of a Middle Tibetic language.[13] Already this is more than controversial but Jacques' dating of both processes is also difficult to reconcile with comparative data that sets back the X_2-prefixation to PTH (or its daughter languages) and the Schiefner's law to Proto-Bodish. Jacques' hypothesis could nevertheless be correct for Proto-Bodish if we can prove that the X_2-prefixation was still productive at this stage. But apparently, we cannot.

It is an anachronism of Jacques to discuss the voicing alternation within transitive conjugations as a synchronic stage of PT. It is widely accepted that v1 of these verbs were independently derived from v1 of their intransitive counterparts; e.g., INTR v1 *ɣbab* > **ɣbab+d* > TR v1 *ɣbebs*, and replaced earlier forms

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[9] My typological argument that "for a language to have voiced affricates ([dz] and [dʑ]) without having voiced fricatives ([z] and [ʑ]) is not a plausible scenario" (Bialek 2020a:280, fn. 48) has of course only secondary value.

[10] In Tshangla dz is encountered only in loanwords from Dzongkha and CT but even there it is usually pronounced as z (Andvik 2010:12). dʑ (*j* in Andvik's orthography), although recognised as native phoneme by Andvik (ibid., p. 11), might have originally been introduced from a Tibetic language, most probably CT:

rgyags "provision"	*jas* "ration" (ibid., p. 95)
rgyab "back"	*japka* "after, behind" (ibid., p. 51)
rgyal po "king"	*jelpo* "id." (ibid., p. 29)
rgyug "to run"	*juk* "id." (ibid., p. 82)
rgyoṅ/*brgyaṅs*/*brgyaṅ* "to stretch"	*jaŋ* "to pull" (ibid., p. 67)
sgyu ma "illusion"	*juma* "magician" (ibid., p. 127)
sgyur "to change"	*jur* "id." (ibid., p. 190)
ljaṅ khu "green"	*jangkha* "id." (ibid., p. 39)
byin rlabs "blessing"	*jinlap* "id." (ibid., p. 37)
ɣbyuṅ "to occur"	*jung* "to develop" (ibid., p. 49)
ɣbyon "to go"	*jon* "id." (ibid., p. 166)
sbyoṅ/*sbyaṅs*/*sbyaṅ* "to practise"	*jaŋ* "id." (ibid., p. 67)

There seem to be very few words in Tshangla for which no Tibetan source word can be identified, notably *jang* "I" (ibid., p. 11). Andvik's findings have recently been confirmed for Bjokapakha, a Tshangla dialect (Grollmann 2020). Kurtöp ɟ (often realised as dʑ, Hyslop 2017:32) has likewise other sources and might have originally been introduced from Tibetic. In loanwords from Tibetic languages Kurtöp renders dz as z and has no native dz (ibid., p. 34).

[11] Bunan has clearly not undergone the deaffrication dz/dʑ- > z/ʑ- (Widmer 2017).

[12] By the way, Jacques uses both terms, pre-Tibetan and proto-Tibetan, with no discernible difference in meaning.

[13] The OT verb inflection system seems to have been a Tibetan innovation. It started developing in PT and was still partially productive as late as in LOT (Bialek 2020a). No traces of similar inflectional systems have been reported from other TH languages thus far.

(**phebd* in the case of *ɣbebs*).[14] EOT inherited intransitive verbs that were identical with verb roots and only later, maybe even as late as in LOT, added the prefix *ɣ-* to distinguish between v1 and v2. Because the imperfective prefix *ɣ-* was still productive in LOT,[15] the derivation of transitive v1 in *ɣ—d* from intransitve *ɣ-* must have also been productive in LOT. For no reflexes of these v1 forms are found in WAT, we can assume that they first occurred in MOT. Likewise v3 of the 'mixed' conjugations[16] were recently shown to have been formed from intransitive roots, albeit earlier than v1, most probably in PT (see Bialek 2020a:311ff.). This development can be illustrated with the pair √ʒig ~ √ɕig:

	PT	EOT/MOT	LOT
INTR √ʒig	*ʒig	*źig*	*ɣǰig*/*źig*
TR √ɕig	*b+ɕig/*g+ʒig/*ɕig+*s*	*bśig*/*gźig*/*śigs*	*ɣǰig*/*bśig*/*gźig*/*śigs*[17]

Because the X_2-prefixation must have preceded Schiefner's law and the latter can be dated to Proto-Bodish, it follows that PT must have inherited voiced fricatives z- and ʒ-. This remains a valid counter-argument to the radical version of Schiefner's law as formulated by Hill.

I propose a revision to Jacques' hypothesis exemplified with Kurtöp and Bunan cognates of PT √ʒig and √ɕig:

Bunan	*ʣikt-* "collapse (of walls)"	*ɕik-* "tear down (walls)"[18]
Kurtöp	*zhik* "be hit"[19]	*shik* "tear down or break apart"[20]

Bunan data complicates the picture. The language does not have voiced fricatives[21], therefore *ʣikt-* can be explained as:c

1. A loan from OT *ɣǰig*;
2. A result of an earlier merger of *ʒ* and *ʣ* (*ʒik- > *ʣik-);
3. The original form of the verb from which *ɕik-* (< *tɕik-) was derived by means of a devoicing transitivising affix.[22]

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[14] For a most recent discussion see Bialek (2020a:277, 315, and 339 for √pab ~ √bab).

[15] Compare hereto Bialek (2018a:1.315f.) on *śi* (CT v1 *ɣčhi* v2 *śi*) and Bialek (2020a:304f.) on *źig* (CT *ɣǰig* v2 *źig*).

[16] Type 3a of Bialek (2020a:276ff.).

[17] One would expect the TR v1 to have been **ɣǰigs* (< **ɣǰig*+*d*) but this form was blocked by the existence of another verb: *ɣǰigs* "to fear".

[18] Widmer (2017:738a & 753b). *ʣikt-* is a monovalent verb formed from **ʣik* by means of "the functionally opaque suffix *-t*" (ibid., p. 384ff.). Compare Chepang *jik-* [ʤik] "be sick, injured, hurt, sore" (Caughley 2000:106a).

[19] Hyslop (2017:61).

[20] Hyslop et al. (2016 Draft:216b).

[21] See Widmer (2017:62, Table 17 & p. 74). Here are some correspondences between Bunan and OT:

Bunan	**OT**	**Bunan**	**OT**
ʣak "fat"	*źag* "id."	*ʣa-* "(INTR) to eat"	*za* "to eat"
ʣakpa "lasso, noose"	*źags* "leash"	*ʣampa* "bridge"	*zam* (pa) "id."
ʣal "to visit"	*mǰal* "to meet"	*ʣaŋpo* "clear, good"	*bzaṅ po* "good"
ʣami "smooth"	*ɣǰam* "soft, smooth"	*ʣaŋsma* "copper"	*zaṅs* "id."
ʣaw "lame person"	*źa ba* "lame"	*ʣer* "nail"	*gzer* "id."
ʣu "to digest"	*źu* "id."	*ʣik* "leopard	*gzig* "id."
ʣu "to request"	*źu* "id."	*ʣilpa* "dew"	*zil pa* "id."
ʣuks- "to sit"	*bźugs* "id."	*ʣiŋ* "pool"	*rjiṅ* "pond"
ʣuṅ "middle"	*gźuṅ* "id."	*ʣom-* "(INTR) to assemble"	*ɣɟom* "id."
		ʣot "store-room"	*mɟod* "id."
		ʣuk "pain, sickness"	*zug*/*gzug* "pain"
		ʣuk "to begin"	*ɣǰugs* "to stick into; to begin"
		ʣuks "body"	*gzugs* "id."
		ʣwa "bucket"	*zo ba* "id."

[22] The last hypothesis would necessitate the additional deaffrication of the initial *tɕ-, a process otherwise not attested in Bunan.

Presuming that *ʣikt-* belongs to the inherited vocabulary of Bunan, the only way to account for the above data seems to be:

Table 1: *Sound changes from PTH to Proto-Bodish*

Language	Process	Examples
PTH	X_2-prefixation	*sjig > X_2+sjig > *zjig *tsugs > X_2+tsugs > *ʣugs
Proto-Bodic	Merger of z with ʣ	*zjig > ʣjig (Bunan *ʣik-*)[23] *ʣugs (Bunan *ʣug-*)
Proto-Bodish	Deaffrication	*ʣjig > *zjig (OT *źig* [ʑig] /zjig/, Kurtöp *zhik*)[24] *ʣugs > *zugs (OT *zug*)[25]

Deaffrication affected voiced affricates in initial position. The complementary distribution of z/ʑ and ʣ/ʥ in OT resulted from a morphological process specific to PT and OT:

Table 2: *Sound changes in PT*

Language	Process	Examples
PT/OT	D-epenthesis after *m-*, *ɣ-*, and *r-*	*źig* [ʑig] > *ɣǰig* [ɣʥig]

Now, the deaffrication can be identified with Schiefner's law and the D-epenthesis with Conrady's law.[26]

3 Are all words what they seem to be?

1. *zoṅ*. Schiefner quoted *zoṅ* ~ *choṅ* "merchandise" as alternating cognates (1852:366). This example was taken over by Hill (2014:169; 2019:26) and Jacques (p. 34) to demonstrate Schiefner's law: *zoṅ* < *ʣoŋ. Two arguments speak against this etymology. Firstly, *zoṅ* has an alternating form *zog* (J:490a) which is much better attested in modern dialects (see CDTD:7406). Secondly, because √tsoŋ is a transitive verb "to sell" its alleged counterpart √zoŋ would have to be intransitive. Apart from the fact that an intransitive counterpart of a verb "to sell" is difficult to define semantically, *zoṅ* with the meaning "merchandise, goods" would have to be derived from the intransitive verb. This is not possible in Tibetic languages because of the patient-oriented meaning of *zoṅ*.[27] Concluding, *zoṅ* is a secondary variant formed from the original *zog* most probably under the influence of the verb √tsoŋ with which it frequently co-occurred in discourse. Alternatively, the change might have first occurred in the synonymic compound *choṅ zoṅ* "merchandise" (J:490a) < **choṅ zog* through progressive assimilation: *-g* > *-ŋ* / *-o_*; cf. Shi *ts^{h}ōŋsòa*, Rka *ts^{h}uŋzoχ* (WT *choṅ zog*) "commodity" (CDTD:6869), but ArTBL *ts^{h}oŋzoŋ* (WT *choṅ zoṅ*) "goods, merchandise" (CDTD:6870).[28]

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[23] This merger most probably occurred earlier in the prehistory of the language family; see the comparative data in Hill (2019:27).

[24] Palatalisation of dentals and [l] before [j] is the main innovation of Tibetic languages (Tournadre 2014:133ff.; Hill 2019:16f.); on the phonemic status of palatals in OT, see Hill (2010:118). As it seems, palatalisation of dentals also occurred in Bunan, maybe under the influence of Tibetic languages. Widmer collected only four examples of 'dental + [j]' (2017:100f.; *tjo* in *tjo-men* "cry-INF" (cognate with *tjod-men* "cry.PL-INF") may be related to CT *čho* in *čho ṅe*(*s*) "lamentation").

[25] The lack of *-s* in *zug* as compared with *ɣjugs*/*bcugs*/*gzugs*/*zugs* remains unexplained. In the same way one has to reconstruct PT √ʑug "to enter" ~ √tɕug "to put in" etc., as against Bialek (2020a:280, fn. 48). Bjokapakha *tsuk-* "to put, to put on, to put in" ~ *zug* "thorn, spike" (Grollmann 2020:497b & 500b) can be added to the examples.

[26] See Hill (2019:27). D-epenthesis was a more encompassing process, influencing diverse consonant clusters; cf. Bialek (2018b:5f. & 9–10, fn. 25).

[27] On patient-oriented deverbals in OT see Bialek (2020a:297 & 302f.)

[28] There is no motivation for the reversed change *zoṅ* > *zog*. The latter can be cognate with *ɣjog* "to heap together" (J:467a). In addition to *zoṅ* ~ *choṅ*, Schiefner also put forward the pair *char* "ends of threads" ~ *zar*/*ɣjar* "tassel" (1852:366). Here the issue is self-evident: *char* is related to *ɣchar* "to be at an end" (J:458b) and *zar*/*ɣjar* to *ɣjar* "to hang down" (J:464).

2. *ǰo* in *ǰo mo* and *ǰo bo*. Hill explained away *ǰo bo* as a variant spelling of *rǰo bo* arguing that the latter (1) is the original spelling for it occurs in Pt 1287, (2) there are no other words in OT beginning with *ǰo*, and (3) *rǰo* must be related to *rǰe* (2014:171, fn. 7).[29] The first two arguments are misled. OT *ǰo bo* is certainly related to *ǰo mo*. The latter occurs in ITJ 750:302 which is the oldest attestation of the stem *ǰo*.[30] In OTD I explain it as related to the verb *ɣǰo* "to milk, to nurse" (√ʒo < Proto-Bodish *ʤo).[31] The etymological meaning of *ǰo mo* was *"nursing she"; *ǰo bo* was coined by analogy with *ǰo mo* after the latter had been re-functioned as a title of the first consort of a *bcan po* upon giving birth to the heir to the throne. This etymology sees *ǰo* [ʤo] as an archaism retained in PT. The form *rǰo* needs further research but it might have been shaped by analogy with *rǰe* with which it appears to share its semantics.[32]

3. *khu ljo*. I reconstructed OT *khu ljo* as **khul gyi ɣǰo khug*, lit. "a bag (*khug*) [made] of wool (*khul*) [and used] for nursing (*ɣǰo*)" (2018a:337f.), arguing that the CT spelling *khul źo* resulted from folk etymologisation of the second syllable by analogy with *źo* "milk" (ibid., p. 337–8, fn. 3): *khu ljo* > **khul ǰo* (reanalysis of syllable boundaries) > *khul źo* (folk etymology). Hill recognised *khu ljo* as an earlier spelling and postulated that the change of the second syllable from *-ljo* to *-źo* is another example of Schiefner's law (2014:171; 2019:27). In this case, the change would have to be dated very late, i.e. to a Middle Tibetic language.

4. *źal*. Hill followed Dotson in relating *źal-* in *źal če* to the OT verb *ɣjal*/*bčal*/*gźal*/*čhol* (< √ʒal ~ √ʧal) "to weigh, to measure" (Dotson 2007:35, fn. 39; Hill 2014:171; 2019:26f.). There are three problems with Dotson's etymology: 1. the meaning of *źal* has not been defined; 2. the second syllable of the compound is left unexplained; and 3. it is biased or even modelled on the notion of judging as prevailing in the European and Mediterranean cultural area where judging is conceived of a weighing (~ *ɣǰal*) of arguments – a conception unfamiliar to OT legal texts. Against this etymology I argued that the OT meaning of *źal če* (< **źa lče* "speech") was "[1]statement; [2]sentence" and that there are analogous formations like OT *kha mčhu* "dispute" and *źal mčhu* "HON of *kha mčhu*" that support the identification of *źal-* with *źal* "face" and *-lče*/*-če* with *lče* "[1]tongue; [2]speech" (2018a:2.434ff.).

Hill and Jacques made use of the above examples to demonstrate that: 1. OT had no lexemes with etymological voiced affricates in onset (*ǰo*), and 2. lexemes with voiced fricative onset resulted from Schiefner's law in PT (*zoṅ*, *khu ljo*, *źal če*). The above critical evaluation of the proposed etymologies undermines both these assumptions with respect to the examined lexemes.

4 Conclusions

The paper critically evaluates Jacques' hypothesis but agrees with its fundamental assumptions: the directionality of voicing from voiceless transitive to voiced intransitive and the validity of Schiefner's law. The revision concerns only the timeline of the processes that, in my opinion, stretched over several stages in the development of the whole language family and were not restricted to the history of Tibetic languages. Jacques' attempt "to show *direct* evidence for the directionality of the voicing alternation" (p. 32; emphasis added) has not, to my mind, been successfully completed; instead of the "direct evidence" the reader obtains a reasoning based on economy of two alternative approaches: one (*X_2) vs three (*X_1, *ʒ, *z) additional elements in the phonemic inventory of PT (p. 36). This is an argument, but not "direct evidence" and it has to be dated back to at least Proto-Bodic. Another argument comes from the examination of the causative prefix *s-* in Tibetic languages (see Jacques 2020a). The latter remained productive in OT with no traces of

[29] A recurring argument in discussions on Schiefner's law is the virtual absence of lexical words in ʤ- and ʣ- in CT. Although basicaly true, we notice that OT had a few more such lexemes: *ǰi*/*či* "what", *ǰu* in *ǰu tig* "divination by threads" (etymology unknown), *ǰe ba* "title of a young woman", *ǰo mo* "title of the first consort of a *bcan po*", *ǰo bo* "lord".

[30] OTA (Pt 1288 & ITJ 750) is the only OT text known to have been composed before LOT. In many cases it has preserved EOT orthography; see Bialek (2018b).

[31] Cognates of the verb *ɣǰo* known from other TH languages unanimously point to an affricate initial; see data on STEDT #5539 (https://stedt.berkeley.edu/~stedt-cgi/rootcanal.pl/etymon/5539; accessed 10.10.2020). Hill's equation of OT *źo* with Japhug *tɤ-lu* "milk" (2014:171; 2019:14) seems therefore incorrect.

[32] Alternatively, *rǰe* might have been derived from *rǰo*: *rǰo* > **rǰeɣu* (regular diminutive derivation) > *rǰe*, although the following equation can also be made: *ǰo* : *rǰo* ~ *ǰe* (in *ǰe ba*) : *rǰe*.

accompanying devoicing of the root consonant.[33] These two arguments work to the advantage of the voiceless > voiced hypothesis.

A note on Thebo. Jacques' statement that "[P]ast *b-* actually causes progressive voicing of the following initial consonant in Thebo" (p. 35)[34] requires a qualification. Data presented by Lin indeed suggests such a conclusion but only for some verbs.[35]

1. Verbs with voiced initials in reflexes of OT v2 with voiceless root consonant:[36]

Table 3: *Transitive conjugations in Thebo*

v1	v2	v3	v4	Thebo meaning
ɣkhrud [tshiʔ]	*bkrus* [ʣi:]	*bkru*	*khrus* [tshi:]	wash
ɣgugs [ⁿguʔ]	*bkug* [guʔ]	*dgug*	*khug* [kʰuʔ]	bend
ɣgebs [kʰoʔ][37]	*bkab* [goʔ]	*dgab*	*khob* [kʰoʔ]	conceal
ɣges [ⁿgɑ]	*bkas* [gɛ:]	*dgas*	*khos* [kʰe]	crack
ɣgog [ⁿguʔ]	*bkog* [gɑʔ]	*dgog*	*khog* [kʰuʔ]	block
ɣgyog [ⁿʣuʔ]	*bkyags* [ʣɑʔ][38]	*bkyag*	*khyog* [ʦʰuʔ]	lift; raise
ɣgrol [tshi:]/[tshu:]	*bkrol* [ʣɛ:]/[ʣɑ:]	*dgrol*	*khrol* [tshi:]/[tshu:]	untie
gčog [ʧuʔᴴ]	*bčag*	*gčag*	*čhog* [ʧʰuʔᴴ]	break (TR)
gčod [ʧeʔᴴ]	*bčad* [ʤeʔ]	*gčad*	*čhod* [ʧʰeʔ]	cut off
ɣčhaṅ [ʧʰõ]	*bčaṅs* [ʤõ]	*bčaṅ*	*čhoṅs* [ʧʰũ]	hold
ɣčhu [ʧʰə]	*bčus* [ʤi:]	*bču*	*čhus* [ʧʰi:]	scoop
gtoṅ [tũᴴ]	*btaṅ* [dõ]	*gtaṅ*	*thoṅ* [tʰũ]	urinate (with *čhu*)
ɣthag [tʰɑʔ]	*btags* [dɑʔ]	*btag*	*thog* [tʰuʔ]	[I]chop; [II]weave
ɣthu [tʰə]	*btus* [di:]	*btu*	*thus* [tʰi]	collect
ɣthog [tʰuʔ]	*btog* [duʔ]	*gtog*	*thogs* [tʰuʔ]	pick
ɣdebs [ⁿdeʔ]	*btab* [doʔ]	*gdab*	*thob* [tʰoʔ]	sow
ɣdogs [ⁿduʔ]	*btags* [dɑʔ]	*gdags*	*thogs* [tʰuʔ]	[1]bind; [2]wear
ɣphral [tʂi:]	*phral* [dzɛ:]	*dbral*	*phrol* [tʂi:]	to separate[39]
ɣbug [pʰʊʔ][40]	*phug* [bʊʔ]	*dbug*	*phugs* [pʰʊʔ]	drill
ɣbubs [pʰə]	*phub* [bʊʔ]	*dbub*	*phub* [pʰʊʔ]	put above[41]
ɣbogs [pʰu]	*phog* [buʔ]	*dbog*	*phogs* [pʰuʔ]	befall[42]
ɣchag [ʦʰɑʔ]	*bcags* [ʤɑʔ]	*bcag*	*chog* [ʦʰuʔ]	filter; sieve
ɣchem [tshẽ]	*bcems* [ʤẽ]	*bcem*	*chems*	sew
ɣchoṅ	*bcoṅs* [ʤũ]	*bcoṅ*	*choṅ*	sell
ɣchol [ʦʰi:]/[ʦʰu:]	*bcal* [ʤe:]/[ʤɑ:]	*bcal*	*chol* [ʦʰi:]/[ʦʰu:]	seek
ɣjugs [ⁿʤʊʔ]	*bcugs* [ʤʊʔ]	*gzugs*	*chugs* [ʦʰʊʔ]	[1]plant; [2]poke

[33] In the earliest historically attested stage of the language, EOT, the prefix *s-* assimilated to the voicing of the following root consonant yielding results contrary to Shefts-Chang's hypothesis (1971): s+l- > *zl-* /sl-/; s+r- > *zr-* /sr-/; s+ l̥- > *sl-* /sl̥-/; s+r̥- > *sr-* /sr̥-/ (Bialek 2018b).

[34] This statement is based on a recent study by Sangsrgyas Tshering (2020), which, however does not consider all the data provided in Lin (2014; see also fn. 53 below).

[35] If not otherwise stated, all data comes from Lin (2014).

[36] Further v2 stems with voiced onset are quoted by Sangsrgyas Tshering (2020:11ff.). Whenever two forms are quoted divided by a slash, the first one represents the G.yi-ba and the second one the Choṅ-ru variety of Thebo (see Lin 2014:247).

[37] This is not a regular outcome of OT *ɣgebs*.

[38] Hereto Lin gives also [tsɑʔ] (2014:260b) that has been generalised and is used for v1 and v2 likewise. [tsɑʔ] apparently disagrees with the established pattern.

[39] This set of data is quoted after Jacques (2020b; accessed 07.10.2020). The meaning and the written conjugation are OT.

[40] [pʰʊʔ] might be the original v2 that was generalised for v1 and has been preserved in this position while the original v2 has been replaced by [bʊʔ].

[41] This set of data is quoted after Jacques (2020b; accessed 07.10.2020). The meaning is taken from OT.

[42] This set of data is quoted after Jacques (2020b; accessed 07.10.2020). The meaning and the written conjugation are OT.

However, there exist important exceptions not addressed to in Sangsrgyas Tshering's study (2020).

2. Verbs with a superscript in OT:

Table 4: *Thebo reflexes of an OT superscript*

rku [kə^{H}]	*brkus* [ki:^{H}]	*brku*	*rkus* [ki:^{H}]	steal
rko [ko^{H}]	*brkos* [ke:^{H}]	*brko*	*rkos* [ke:^{H}]	[1]carve; [2]dig
rkyoṅ [ʦõ^{H}]	*brkyaṅs* [ʦõ^{H}]	*brkyaṅ*	*rkyoṅs* [ʦũ^{H}]	stretch forth
skom [kõ^{H}]	*bskams* [kõ^{H}]	*bskam*	*skoms* [kũ^{H}]	get dry
lta [tɑ^{H}]	*bltas* [tɛ:^{H}]	*blta*	*ltos* [te:^{H}]	look at
ston [tɛ̃^{H}]	*bstan* [tɛ̃^{H}]	*bstan*	*ston* [tɛ̃^{H}]	show
spoṅ [põ^{H}]	*spaṅs* [põ^{H}]	*spaṅ*	*spoṅs* [pũ^{H}]	give up
rcig [ʦiʔ^{H}]	*brcigs* [ʦɑʔ^{H}]	*brcig*	*rcigs* [ʦuʔ^{H}]	build
rced [ʦeʔ]	*brces* [ʦe:]	*brce*	*rces* [ʦe:]	play
sloṅ [ʦõ]	*bslaṅs* [ʦõ]	*bslaṅ*	*sloṅs* [ʦũ]	scare

3. Verbs with a voiceless fricative as root consonant in OT:[43]

Table 5: *Thebo reflexes of OT voiceless fricatives*

ɣčhad [ʃeʔ^{H}]/[xeʔ^{H}][44]	*bśad* [ʃeʔ^{H}]/[xeʔ^{H}]	*bśad*	*śod* [ʃʰeʔ]	say
ɣǰig	*bśig* [ʃiʔ^{H}]	*gźig*	*śigs*	break up
śu [xə^{H}]	*bśus* [xi:^{H}]	*bśu*	*śus* [xi:^{H}]	skin
śom [xõ^{H}]	*bśams* [xõ^{H}]	*bśam*	*śoms* [xũ^{H}]	unfold
gśog	*bśag* [xɑʔ^{H}]	*gśag*	*śogs*	cleave
bśal [ʃe:^{H}]/[xɑ:^{H}]	*bśal* [ʃe:^{H}]/[xɑ:^{H}]		*bśol* [ʃu:^{H}]/[xu:^{H}]	rinse
sems	*bsams* [sõ^{H}]	*bsam*	*soms*	want
sel [sɛ:^{L}]/[sɑ:^{H}]	*bsal* [sɛ:^{L}]/[sɑ:^{H}]	*bsal*	*sol* [si:^{H}]/[su:^{H}]	select
gsod [seʔ^{H}]	*bsad* [sɛʔ^{H}]/[seʔ^{H}]	*gsad*	*sod* [sʰeʔ]	kill

4. Verbs with a liquid as root consonant in OT:

Table 6: *Thebo reflexes of OT liquids*

ɣbri OT *ɣdri* [ⁿdzᵽə]	*bris* [ʈʂi:^{L}]	*bri*	*bris* OT *ris* [ʈʂi:^{L}]	write[45]
ɣbreg [ⁿdzᵽɑʔ]	*bregs* [ʈʂɑʔ^{L}]	*breg*	*brogs* [ʈʂuʔ^{L}]	cut
len [lɛ̃^{L}]	*blaṅs* [lõ^{L}]	*blaṅ*	*loṅs* [lũ^{L}]	sing

[43] Sangsrgyas Tshering quotes *bsil* (v1 *gsil*) [zi:] "to chop (firewood)" (2020:14), but Lin cites two homonyms with a voiceless onset: *bsil* [si:^{H}] "(V) cool" (falsely glossed as "cold"; p. 250b); *bsil mo* [si(:)^{H}-mo] "cool" (p. 251a).

[44] Generalised v2.

[45] For this verb in OT, see Hill (2005).

5. Others:

Table 7: *Other deviations from the main conjugational pattern*

ɣbud [ⁿbiʔ]	*phus* [pi:ᴸ]	*dbu*	*phus* [pi:ᴸ]	blow[46]
ɣbebs	*phab* [pʰoʔ]	*dbab*	*phobs*	bring down
bcaɣ [tsɑ:ᴸ]	*bcas* [tse:ᴸ]			ripe

On the other hand, there are lexemes spelled with the prescript *b-* in OT (distinct from the inflectional *b-)*, in which the following consonant has also undergone voicing in Thebo:

bču [dʒə] "ten" *bcan* [dzɛ̃] "severe"[47]
bcaɣ [dzɑ] "rust" *bcon khaṅ* [dzɛ-khɔ̃] "prison"[48]

Because verbs grouped in 2–4 all have contrastive tone, which is lacking in verbs from group 1, it seems more probable that the voicing in v2 of the latter is a temporary (?) outcome of ongoing tonogenetic processes. A side-effect of the voicing is the merger of '*b*+voiceless plosive' with '*b*+voiced plosive' in v2:

Table 8: *Thebo reflexes of OT v2 with a voiced root consonant*

ɣded [ⁿdeʔ]	*bdas* [dɛ:]	*bdaɣ* [da:][49]	*dos* (?) [dɛ:]	chase
dra [ⁿdzɑ][50]	**bdras*[51] [dzi:][52]		*dros* [tʂi:]	cut out

And with onsets in which pre-consonantal *b-* belonged to the root:

Table 9: *Thebo reflexes of the onset clusters* bg- *and* bgr-

bgod	*bgos* [ge:]	*bgo*	*bgos*	distribute
bgro	*bgros* [dze:]			discuss

The merger of '*b*+voiceless plosive' with '*b*+voiced plosive' in v2 must have obviously postdated the formation of OT verb conjugation patterns.

To sum up, the data, although doubtlessly highly interesting, requires a thorough examination before any far-reaching conclusions can be drawn.[53] Jacques' remark "Thebo is more archaic than Old Tibetan at least in this respect" (p. 35, fn. 8) is therefore premature. Apart from the complicated character of the above data, two arguments speak against the presumed archaic character of Thebo: 1. its conjugational system lacks reflexes of OT v3-stems (a feature shared with all modern Tibetic dialects); and 2. its reflexes of EOT onsets *sl-*, *zl-*, and *sr-* parallel those of some HT and AT dialects (with strong influence from central dialects):[54]

[46] Lin gives *bus* as v2 and v4. WT conjugations provided by lexicographical sources most probably result from mixing up of two conjugations: the transitive (v1 *ɣbud*, v2 **phu*, v3 *dbu*, v4 *phus*) and the intransitive (v1 **ɣbu*, v2 *bus*). Thebo [pi:ᴸ] is a reflex of *bus*.

[47] After Sangsrgyas Tshering (2020:14).

[48] Ibid., p. 13.

[49] As v1 of independent verb *bdaɣ* "to drive away" in *ri dwags bdaɣ* "to hunt" (Lin 2014:256a).

[50] This form suggests the underlying **ɣdra*, a less frequently attested v1 of the verb.

[51] See Bialek (2020a:274, fn. 26).

[52] Lin gives also the alternative form [tʂe:], WT *dras*, with the meaning "to snip".

[53] Apart from *bsil* (see fn. 43), verbs of groups 2–5 have not been considered by Sangsrgyas Tshering, but, in my view, they challenge his hypothesis and require an explanation. As the voicing phenomenon is not attested in all Thebo varieties (Sangsrgyas Tshering 2020:19), it is worth considering an areal feature or influence from a substrate language.

[54] Data from HT and AT is quoted after Bialek (2018b:48, Appendix B).

Table 10: *Thebo reflexes of OT* sl-*,* zl-*, and* sr-

		sl-	***zl-***	***sr-***
	Thebo	ʦ-^{H}/l̥-/l-^{H}	ʣ-/d-	ʃ-$^{H/L}$/ʂ-$^{H/L}$ (G) ʃ-^{H}/x-^{H}/ʂ- (T)[55]
HT	Ger	ʦ̄ ~ lā	ʣ̲ ~ n̲d	ʧ̲̄ ~ s̄ ~ ʂ̄
	Am	ʦ̄		ʧ̲̄ā ~ ʂ̄ ~ s̄
	Hor	ʦ^{h}ā ~ ʦ̄ ~ lā	ʣ̲ ~ d̲	ʧ̲̄ā ~ ʂ̄ ~ s̄
	Nak/Bach	ʦ̄		s̄
AT	Rma	ʦ ~ ɬ ~ l	d	ʧ̲ ~ s ~ ʂ̲
	Mdzo	ʦ ~ ɬ ~ ɬ	d	ʧ̲ ~ ʂʧ̲ ~ ʂ̲
	Ndzo	^{h}l	ʣ ~ d	ʂ̲

After all, we shall not forget that our OT sources come from the period of Late Old Tibetan or even from Early Middle Tibetan. We have only limited access to Early Old Tibetan data, usually through toponyms or archaisms.

Abbreviations

√ reconstructed verb root
* reconstructed form
Ar Arik
AT Amdo Tibetan
CDTD Bielmeier et al. (see References)
CT Classical Tibetan
D dental stop
EOT Early Old Tibetan
G voiced obstruent
HT Northern Kham Tibetan
INF infinitive
INTR intransitive
ITJ IOL Tib J
J Jäschke, 1881 (see References)
K voiceless obstruent
LOT Late Old Tibetan
MOT Middle Old Tibetan
OTA *Old Tibetan Annals*
OTD Old Tibetan Dictionary (see Internet sources)
OT Old Tibetan
PL plural
Pt Pelliot tibétain
PT Proto-Tibetic
PTH Proto-Trans-Himalayan
Rka Rkangtsha
Shi Shigatse
STEDT Sino-Tibetan Etymological Dictionary and Thesaurus (see Internet sources)
TH Trans-Himalayan
v1, v2, v3, v4 verb stems
WAT Western Archaic Tibetan
WT written Tibetan

[55] (G) marks the Thebo variation from G.yi-ba, (T) the one from Choṅ-ru. Lin sometimes omits the tone marker. Moreover, in two cases reflexes of OT *sr-* are marked with low tone: *sre* [ʂe:^{L}] "dilute", *sriṅ mo* [ʃe^{L}-wũ] "younger sister", without any comment.

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